

REMARKS

Originally filed claims 1-5, as currently amended, and new claim 6 are the only active claims pending in this application. The foregoing separate sheets marked as "Listing of Claims" shows all the claims in the application, each with an indication at its first line showing the claim's current status.

The Office Action rejects claims 1-5 under 35 U.S.C. § 103 as being unpatentable over JP 2002-169484 ("Oshika") in view of U.S. Publication No. 2003/009027 ("Shigehiro"). Office Action at ¶ 1.

Applicants respectfully traverse the rejection, and respectfully request that it be reconsidered and withdrawn. Applicants respectfully submit that Oshika, which is described in the Background of Applicants' specification, is an exemplar of a prior art apparatus and method having shortcomings to which the present invention is directed, and lacks elements and limitations of Applicants' claims. Applicants respectfully submit that Shigehiro is from a different field of endeavor and, even if viewed as prior art, lacks elements, limitations and arrangements defined by Applicants' claims. Applicants submit that the collected disclosures of Oshika and Shigehiro, in addition to lacking elements, limitations and arrangements defined by Applicants' claims, lack disclosure, teaching or suggestion for combining and/or modifying anything in their respective disclosures, or in any other prior art of record, toward Applicants' claims.

Applicants' claim 1 invention is "an image display unit having an image display surface ... [and a] unit for ejecting ink droplets toward said image display surface," where the image display surface includes:

at least one ink rejection regions, said region formed of a material with a surface property repellant to said ink, and a plurality of ink holding regions, to hold said ejected ink droplets, arranged according to a matrix-like pattern so that each of the ink holding regions is surrounded by said ink repelling region

Claim 1, currently amended.

Applicants' FIG. 3 provides example support for the claim 1 "image display surface." Referring to FIG. 3, item 12 shows an example image display surface

according to claim 1, with 12a illustrating example support for "ink holding regions," and 12b illustrating example support for "ink repelling regions," and showing example support for the claim 1 "matrix-like pattern."

As described in Applicants' specification, the invention defined by claim 1 substantially prevents ink droplets from moving laterally one another, which blurs the image that is displayed. See Specification at page 13, line 23 (second-to-last line), through page 14, line 8 (last line of paragraph beginning with "Fig. 3.")

Oshika, the primary reference, is described in the Background section of Applicants' specification. See Specification, at page 2, first and second paragraph, and at page 3, first full paragraph. Oshika discloses a belt-type display apparatus that ejects droplets of ink onto an "image display surface" of a belt, labeled as item "3." Oshika, at [0010]. Oshika's "image display surface 3" is a "feltboard" having a "'soft quality.'" *Id.*

Applicants' claim 1 recites "at least one ink repelling region ... repellant to said ink." Claim 1, currently amended, at lines 8-9. There is nothing found in Oshika that embodies, or that teaches, discloses or suggests, this element.

Oshika's surface 3 is disclosed as a surface of a material – preferably feltboard – nothing more. Oshika does not describe its feltboard, or any other printing surface, as having "at least one ink repelling region." Actually, Official Notice may be taken that feltboard, as disclosed by Oshika, does not have "at least one ink repelling region." Further, Further, there is nothing in Oshika showing that its feltboard, or any other printing surface, inherently has "at least one ink repelling region." On the contrary, as Applicants describe in their specification, Oshika's lack of the claimed structure is a reason that "adjacent ink droplets impinged on ... [Oshika's] surface ... may often contact each other, thus causing image blurring." Applicants' Specification, at page 3, third full paragraph.

Applicants respectfully submit that, for at least these reasons, Oshika does not disclose, teach or suggest anything of an image display surface having the claimed "at least one ink repelling region."

Applicants' claim 1 recites "a plurality of ink holding regions ... arranged in a matrix-like pattern." Claim 1, currently amended, at lines 9-12. There is nothing

found in Oshika that embodies, or that teaches, discloses or suggests, this element. Applicants state again that Oshika discloses a printing surface having a surface of a material – preferably feltboard – and discloses nothing more. Oshika discloses nothing of a printing surface having “a plurality of ink holding regions ... arranged in a matrix-like pattern.” Applicants submit that Official Notice may be taken that feltboard, without further description, does not have or embody “a plurality of ink holding regions ... arranged in a matrix-like pattern.” Further, there is nothing in Oshika showing that the claimed arrangement of ink holding regions is present in Oshika under the doctrine of inherency. On the contrary, as Applicants describe in their specification, Oshika’s lack of the claimed structure is a reason that “adjacent ink droplets impinging on ... [Oshika’s] surface ... may often contact each other, thus causing image blurring.” Applicants’ Specification, at page 3, third full paragraph.

Applicants respectfully submit that, for at least these reasons, Oshika does not disclose, teach or suggest anything of an image display surface having the claim 1 “plurality of ink holding regions ... arranged in a matrix-like pattern.”

Applicants’ claim 1 also recites the “plurality of ink holding regions ... arranged in a matrix-like pattern so that each of the ink holding regions is surrounded by said ink repelling region.” Claim 1, currently amended, at lines 10-12. Oshika discloses nothing showing that it embodies, teaches, discloses or suggests this claim limitation.

First, for the reasons Applicants submit above, Oshika lacks “at least one ink-repelling region.”

Second, for the reasons Applicants submit above, Oshika lacks a “plurality of ink holding regions ... arranged in a matrix-like pattern.”

Third, Applicants respectfully submit that Oshika discloses nothing that is reasonably arguable to be a teaching or suggestion for surrounding ink holding regions with an ink repelling region.

Applicants respectfully submit that, for at least these reasons, Oshika does not disclose, teach or suggest anything of an image display surface having the claim 1 “plurality of ink holding regions ... arranged in a matrix-like pattern so that each of the ink holding regions is surrounded by said ink repelling region.”

Applicants submit that Shigehiro, cited as the secondary reference, adds nothing to Oshika relating to Applicants' claim 1.

As a preliminary matter, Shigehiro is from a field unrelated to the present invention. Shigehiro discloses structure unrelated to ink-based displays, and operates on a principle having nothing to do with spraying ink droplets a surface. Shigehiro relates to electro-static displays with solid particles disposed in a space between two parallel electrode plates. Applicants' invention relates to displays using liquid ink droplets on a surface. One of ordinary skill in the art, if facing the problems to which Applicants' invention is directed, would not look to displays using solid particles. Further, a person of ordinary skill in the art of ink droplet displays would not look to art, e.g., Shigehiro, showing black and white particles disposed in a space between two parallel electrode plates, the particles having opposite electrostatic properties (i.e., electrically + or -), to be urged by an applied electrical field, in opposite directions, to form an image.

In addition to being from an unrelated field, even if Shigehiro were considered as prior art, it adds nothing to Oshika that is toward Applicants' claim 1.

Claim 1 recites "at least one ink repelling region ... repellant to said ink." Claim 1, currently amended, at lines 8-9. Shigehiro does not embody, or disclose, teach or suggest this element.

Shigehiro appears to disclose, at its paragraphs [0016] and [0120] – [0125] an entire surface of a display substrate (at least one Shigehiro's items 10 and 11) having a "water repellant property." Shigehiro's disclosure does not show an embodiment of, does not teach or suggest, and has nothing to do with the claim 1 "at least one ink repelling region."

First, Shigehiro discloses the entire surface of the substrate 10 or 11 having what Shigehiro labels as a "water repellant property." Second, and equally important, is that the "property" disclosed by Shigehiro is not a "repellant" or "repelling" property as the words "repellant" and "repelling" are used in, and would be understood from Applicants' disclosure; Shigehiro uses the phrase "water repelling" in relation to obtaining a water contact angle "so that movement of the particles adhered on the substrate can be facilitated." In other words, Shigehiro

discloses a "water repellant" property to mean that particles adhere to the surface but with reduced attraction so that the particles can be easier moved. Applicants respectfully submit that this "water repellant property" of Shigehiro teaches nothing of, does not embody, and has nothing to do with Applicants' claimed "at least one ink repelling region."

Applicants' claim 1 recites "a plurality of ink holding regions ... arranged in a matrix-like pattern." Claim 1, currently amended, at lines 9-12. There is nothing found in Shigehiro that embodies, or that teaches, discloses or suggests this element. Shigehiro discloses solid particles 13 (white) and 14 (black). Shigehiro's electrodes 10c and 11c are not structured for, and are not capable of holding "ink droplets."

Applicants' claim 1 recites the "plurality of ink holding regions ... arranged in a matrix-like pattern so that each of the ink holding regions is surrounded by said ink repelling region." Claim 1, currently amended, at lines 10-12. Shigehiro does not show anything that embodies, or otherwise discloses, teaches or suggests this claim element.

Claim 2 – 6 depend from claim 1, and therefore each includes all limitations of claim 1. Applicants therefore respectfully submit that, for at least the reasons Applicants presented above with respect to claim 1, all of these claims are patentable over Oshika and Shigehiro within the meaning of 35 U.S.C. § 103(a).

Conclusion

In view of the foregoing, Applicants respectfully request that the application be reconsidered, that claims 1-6 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Laurence E. Stein', is written over the typed name.

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